Notice of Allowability	Application No.	Applicant(s)
	09/866,825	INSLEY ET AL.
	Examiner	Art Unit
	Sing P Chan	1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *an amendment dated October 29, 2003*.
2. ☒ The allowed claim(s) is/are *32-36*.
3. ☒ The drawings filed on *May 29, 2001* are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
   (a) ☐ The translation of the foreign language provisional application has been received.
6. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No. ____.
   (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
   (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1☐ Notice of References Cited (PTO-892)
2☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____
4☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5☐ Notice of Informal Patent Application (PTO-152)
6☐ Interview Summary (PTO-413), Paper No._____ .
7☐ Examiner's Amendment/Comment
8☒ Examiner's Statement of Reasons for Allowance
9☐ Other

DETAILED ACTION

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with William Bond on December 4, 2003.

The application has been amended as follows:

32. Cancelled.

32. A method of forming a filtration media array comprising the steps of:

(a) forming a contoured polymeric dielectric film layer;

(b) joining the contoured film layer to a second layer at at least one face of the contoured film layer so as to stabilize the contoured film layer and form flow channels and form a flow channel layer assembly; and

(c) electrostaticly charging the flow channel layer assembly of the contoured film layer and the second layer with an electret charge to form a charged filtration media array.

33. The method of forming a filtration media array of claim 32 further comprising layering multiple charged filtration media arrays formed by steps (a) - (c) so as to create a filter having multiple flow channel layers.

34. The method of forming a filtration media array of claim 33 further comprising joining the adjacent flow channel layers by partially melting at least one face of the multilayer flow channel assembly.

35. A method of forming a filtration media array comprising the steps of:

(a) forming a contoured polymeric film layer;

(b) joining the contoured film layer to a second layer at least one face of the contoured film layer so as to stabilize the contoured film layer and form a series of adjacent flow channels and form a flow channel layer assembly;

(c) layering the flow channel layer assembly so as to create a filtration media array having multiple flow channel layers forming fluid pathways through the filtration media array; and

(d) slicing the filtration media array, while maintaining contoured film layer in the form of the channels, with a hot wire so as to fuse the adjacent layers forming the filtration media array into its final form where the cut rate is controlled so as not to completely obstruct the openings of the filtration media array while forming a dimensionally stable filter.

36. The method of forming a filtration media array of claim 35 further comprising separating a portion of the filtration media array sliced by the hot wire.

Marked Version Showing Changes

33<u>2</u>. A method of forming a filtration media array comprising the steps of:

(a) forming a contoured polymeric dielectric film layer;

(b) joining the contoured film layer to a second layer at at least one face of the contoured film layer so as to stabilize the contoured film layer and form flow channels and form a flow channel layer assembly; and

(c) electrostaticly charging the flow channel layer assembly of the contoured film layer and the second layer with an electret charge to form a charged filtration media array.

3~~4~~<u>3</u>. The method of forming a filtration media array of claim 33<u>2</u> further comprising layering multiple charged filtration media arrays formed by steps (a) - (c) so as to create a filter having multiple flow channel layers.

3~~5~~<u>4</u>. The method of forming a filtration media array of claim 3~~4~~<u>3</u> further comprising joining the adjacent flow channel layers by partially melting at least one face of the multilayer flow channel assembly.

3~~6~~<u>5</u>. A method of forming a filtration media array comprising the steps of:

(a) forming a contoured polymeric film layer;

(b) joining the contoured film layer to a second layer at least one face of the contoured film layer so as to stabilize the contoured film layer and form a series of adjacent flow channels and form a flow channel layer assembly;

(c) layering the flow channel layer assembly so as to create a filtration media array having multiple flow channel layers forming fluid pathways through the filtration media array; and

(d) slicing the filtration media array, while maintaining contoured film layer in the form of the channels, with a hot wire so as to fuse the adjacent layers forming the filtration media array into its final form where the cut rate is controlled so as not to completely obstruct the openings of the filtration media array while forming a dimensionally stable filter.

3~~7~~6. The method of forming a filtration media array of claim 3~~6~~5 further comprising separating a portion of the filtration media array sliced by the hot wire.

Allowable Subject Matter

1. Claims 32-36 are allowed.

2. The following is an examiner's statement of reasons for allowance: The claims recite a method of forming a contoured layer channel flow filtration media. The method includes the steps of forming a contoured polymer film, joining the contoured polymer film to another polymer film to form a flow channel layer assembly, changing the flow channel layer assembly electrostaticly to form the charged filtration media, layering the charged filtration media to form the filter with multiple flow channels, cutting and fusing the flow channel layer assembly with a hot wire at controlled cut rate so as not to completely obstruct the filtration media array to form the dimensionally stable filter. (Claim 35) Kalt (U.S. 4,249,919) discloses a method of forming an electrostatic filter.

The method includes the steps of forming the first polymeric film into the desired shape using heat and pressure, bonding the first polymeric film to the second polymeric film to form the flow channel layer assembly, and charging the filter with an electrical circuit to filter the particle. (Col 3, line 30 to Col 4, line 50, Col 5, lines 8-15, and figures 1-5) However, Kalt does not disclose forming a flow channel layer assembly charging the flow channel layer, assembly prior to layering the flow channel layer assembly to form the filter, layering multiple flow channel layer assemblies to form the filtration media array, and fuse the assemblies to form the final filtration media array. Insley et al discloses a method of forming a filtration media. The method includes the steps of facing layers, joining the facing layer to form the channel assembly, stacking the channel assemblies to form the filtration media, (Col 8, lines 43-56) and slicing the filtration media to form the volume controlled depth. (Col 6, lines 45-52) Insley et al is silent as to the filtration media is sliced with a hot wire and fusing the adjacent layers. Hurd (U.S. 4,372,000) discloses a method of forming a beehive frame. The method includes forming a honeycomb member by molding expanded polystyrene, the member is cut lengthwise with a hot wire, and sandwiching a sheet of comb foundation. (Col 2, lines 16-67) Hurd does not discloses forming a flow channel layer assembly charging the flow channel layer, assembly prior to layering the flow channel layer assembly to form the filter, layering multiple flow channel layer assemblies to form the filtration media array, cut and fuse the assemblies to form the final filtration media array at a controlled cut rate, which would not obstruct the opening of the filtration media array. A

search of the prior art of record did not disclose any reference or references in combination, which recite the claimed features.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sing P Chan whose telephone number is 703-305-3175, after December 25, 2003 the examiner's telephone number will change to (571) 272-1225. The examiner can normally be reached on Monday-Friday 7:30AM-11:15AM and 12:15PM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 703-308-3853, after December 25, 2003 the examiner's supervisor telephone number will change to (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Chan Sing Po

spc

RICHARD CRISPINO
SUPERVISORY PATENT EXAMINER
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